12 RESPONSIBLE CONSUMPTION AND PRODUCTION

SDG12: Responsible consumption and production

Ensure responsible consumption and production patterns

With 193 governments coming together to agree a common framework to tackle 17 major world issues by 2030, business engagement to achieve them is seen as critical. So how do you understand the implications of the SDGs and prioritise them? How do you quantify and minimise the potential risks, and explore the opportunities?

This is an extract from PwC's Navigating the SDGs: a business guide to engaging with the UN Global Goals 2016 on SDG 12 Responsible consumption and production. For more on the other 16 SDGs, go to www.pwc.com/globalgoals

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1.3bn tonnes

Roughly one third of all the food produced in the world for human consumption every year – approximately 1.3 billion tonnes – gets lost or wasted. Where we waste food, we also waste the fertilisers, pesticides and water which went into its production and the fuel used for its harvesting, processing and transportation.[3]

41.8m tonnes

It's estimated that 41.8m tonnes of e-waste (from discarded electronic goods) was generated in 2014, a figure predicted to rise to 50m tonnes by 2018.[4]

What's the global challenge?

- Producing materials from mining and agriculture creates significant environmental impacts. Greater **resource efficiency** will help us address the issue of irreversible **environmental degradation**, which could reach a point where potentially renewable resources such as soil and water can no longer self-regulate, further threatening the **availability of natural resources** for our use.

- A rising population, urbanisation and, overwhelmingly, **economic growth**, are driving an **ever increasing demand for natural resources**: energy, soil, water and minerals. If current consumption trends continue, natural resources could be **rapidly depleted**. The EU has defined 20 "critical raw materials", which are of particular concern given their growing economic importance and their high risk of supply shortage. Included in this classification are elements such as: beryllium, chromium, indium, magnesium and the platinum group metals. Being faced with rapidly depleting resources demands that we improve **resource efficiency** in **consumption and production**.

- Improving resource efficiency also means less **waste**. Waste covers a very wide spectrum of discarded materials from **municipal, electrical and electronic**, to **industrial** and **agricultural** waste.[1] The amount of just one waste category, **municipal waste**, is projected to rise from 3.5 million tonnes per day in 2010 to more than 6 million tonnes per day by 2025, tripling to 11 million tonnes per day by 2100. This means **rising costs of disposal** and increasing **environmental and health impacts**. Waste incineration raises concerns about air pollution, while landfill sites leak methane – a potent greenhouse gas which exacerbates climate change.[2]

- Of all the **food** produced in the world for human consumption every year, roughly **one third** – approximately 1.3 billion tonnes – gets **lost or wasted**. Where we waste food, we also waste the chemicals, such as fertilisers and pesticides, which went into its production and the **fuel** used for its transportation. While rotting food creates yet more harmful methane, a potent **greenhouse gas**.[3]

- The ultimate goal is to create a **circular economy**, which is producing no waste and no pollution, by design or intention – not just by re-using and recycling things – but also by repairing them, designing them to last longer and finding more **sustainable business models**. Extending product life, reusing, re-manufacturing and recycling products both reduces the need for new resources and reduces the impacts from waste disposal. Recycled aluminium emits 20 times less greenhouse gases than virgin material. The deployment of these options is an example of the creation of a more circular economy, which is producing more economic activity whilst reducing the impacts from resource use.

- In 2015 the UN identified **e-waste** as "one of the fastest-growing waste streams" on the planet, leaving a **toxic legacy** of heavy metals and chemicals in countries such as India and China where recycling factories recover e-waste materials. Globally, an estimated 41.8m tonnes of e-waste was discarded in 2014, a figure predicted to rise to 50m tonnes by 2018.[4]

- Globally an estimated **193,460 people died** in 2012 as a result of **unintentional poisonings**, causing the loss of over **10.7 million years** of healthy life.[5] 84% of these deaths occurred in low and middle income countries, where such poisonings can be strongly associated with excessive exposure to, and inappropriate use of, **toxic chemicals**.

Why does it matter for business? And what can business do?

The impact of rising resource scarcity will require businesses to transform. Resource efficiency and waste reduction can reduce costs and underpin stability.

- **43% of CEOs** ranked **resource scarcity** and climate change in their **top three megatrends** that will transform their business.[6]
- Increasing **resource efficiency** can help a company **reduce its cost base** and reduce risks associated with **security of supply** and **price volatility**, supporting **sustainable growth** in the medium to longer term.
- Leading companies are setting specific stretch targets to **decouple** their **growth** from environmental impacts. They typically find that setting such targets drives **strong innovation** and builds **brand value**, as well as helps them to achieve cost and risk reductions.

? *Do you have **targets** to reduce the **energy** and **resource intensity** of the production and use of your products? Has your company considered setting a target to grow the business while reducing operational energy and resource use?*

- **Municipal waste disposal** is putting enormous **pressure on local governments**, particularly in developing countries, squeezing the funds available for spending on other services, with knock on **negative effects for residents, businesses and local economies**.[7]
- Companies also face **rising costs of disposal** for the waste they generate themselves, strengthening the business case for moving towards **circular economy business models**, focusing innovation and research and development efforts on finding ways to reuse resources, regenerate natural capital and decouple resource use from growth.

? *Has your company assessed the cost of its **waste disposal** now and projected what it might cost in five to ten years' time? Have you considered the opportunities that circular economy business models might offer for **reducing costs**, both your own and those borne by local government, and for achieving a more stable supply chain or strengthening customer relationships?*

- **Consumers** are becoming increasingly **frustrated** by constant upgrades to electronic equipment that mean they have to shell out for new kit and not just because of the cost. A recent petition, signed by nearly 300,000 people, called for a smartphone provider to retain its existing headphone jack size, and stated that changing the specification would "singlehandedly create mountains of electronic waste – that likely won't get recycled".

? *If you produce electronic goods, to what extent are you factoring e-waste reduction into your strategic decision-making? If you purchase or hire laptops or smartphones for the use of your staff, are you requiring suppliers to improve their performance on reducing e-waste through product design?*

- In **developing countries**, food waste and losses occur mainly at the **early stages of the food value chain**. In **medium and high income countries**, losses occur mainly at **later stages**.[8]

? *If your company is in food manufacture or retail, can you work with **agricultural suppliers** to address the financial, managerial and technical constraints in harvesting, storage and cooling facilities that are key causal factors? Can you **invest profitably** to support improvements in infrastructure and transportation that will help reduce waste and losses?*

? *Can you find **beneficial uses** for manufacturing or retail food waste? Or support consumers to reduce household food waste, by raising their **awareness** of the issues or adjusting your marketing practices?*

- **Poor management of hazardous chemicals** at any stage in their **life cycle** and through the value chain from sourcing to product use and disposal, risks **reputational damage** and **costly lawsuits**.

? *Do you have management systems in place to address environmental and health risks relating to hazardous chemicals and air, water, and soil pollution and contamination in and around your **directly owned facilities?** Do you consider these risks in relation to the **use and/or disposal** of your products?*

? *Does your company understand the sustainability risks it faces? Has it explored the potential value creation opportunities that pursuing sustainability may offer? Are these risks and opportunities reflected in your corporate strategy?*

? *Have you set clear, measurable goals with a strong accountability and governance structure? Have you integrated sustainability information into your reporting practices?*

You could also think about:

? *Ways that your company could engage with employees, customers, the local community and/or the general public to **raise awareness of sustainable development** and **promote lifestyles in harmony with nature.***

? *Whether you could take this further and support your employees and/or customers to **adopt and maintain behaviours** that will reduce environmental impacts through greater resource efficiency and waste reduction.*

A target to link all goals

Target 12.6 asks national governments "to encourage companies, especially large and transnational companies, to **adopt sustainable practices and integrate sustainability information into their reporting cycle"**. It links across to all the Global Goals.

Evidence shows that companies with higher rating for environmental, social and governance factors, i.e. strong sustainable business practices, have: (1) **lower costs of debt and equity** – the market recognises they are lower risk and rewards them accordingly; and (2) that they generally **outperform the market** in the medium (three to five years) and long term (five to ten years).[9]

Companies report that **sustainability strategies deliver value** through reduced operational, reputational and regulatory risk; decreased operating and supply chain costs; enhanced product value propositions attracting greater market share or price premiums; and/or growth via new markets or product innovation.[10]

For sustainability strategies, like any other business strategy, to be successful, companies need to **set goals** and **establish accountabilities**, supported by business metrics. Increasingly companies' internal **management information** and **public reporting** address a broad range of sustainability areas. **72% of CEOs** state their companies are **reporting non-financial information**, according to PwC's 19th Annual CEO Global Survey.[11]

Key links to other SDGs:

Goal 2 – Zero hunger: recovering just half of the food that is lost or wasted would be enough to feed the world.

Goal 3 – Good health and well-being: the sound management and disposal of chemicals and all wastes will minimise adverse impacts on human health.

Goal 6 – Clean water and sanitation: water efficiency will help meet water needs.

Goal 7 – Affordable and clean energy: energy efficiency is a key contributor to achieving universal access to affordable energy services.

Goal 8 – Decent work and economic growth: target 8.4 is to improve resource efficiency in consumption and production and decouple economic growth from environmental degradation.

Goal 11 – Sustainable cities and communities: effective reduction and management of municipal and other waste is critical to reducing the adverse per capita environmental impact of cities.

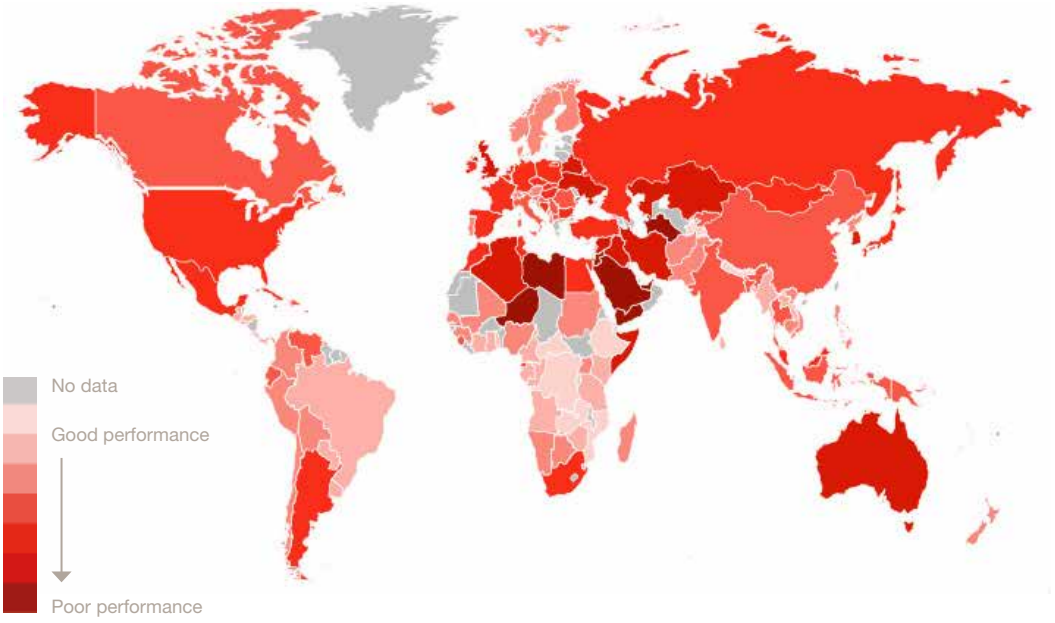
Goal 13 – Climate action: the integration of climate change measures into national policies, strategies and planning will impact on businesses, requiring them to be more energy efficient.

Targets *in focus*

There are eleven targets for SDG 12. The first target is to "Implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries". Target 12.2 in the heat map is "By 2030, achieve the sustainable management and efficient use of natural resources". For details on the remaining targets, please see 'Global Goals and targets' on page 5.

The lie of the land – exploring the distance to cover to achieve

Target 12.2: By 2030, achieve the sustainable management and efficient use of natural resources



Global Goals and targets

Please note 'Targets' are referenced as n.1 n.2 n.3 etc. 'The means of implementing the targets' are referenced as n.a n.b n.c etc.

Goal 12. Ensure sustainable consumption and production patterns

12.1 Implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries

12.2 By 2030, achieve the sustainable management and efficient use of natural resources

12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle

12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities

12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production

12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products

12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities

Sources

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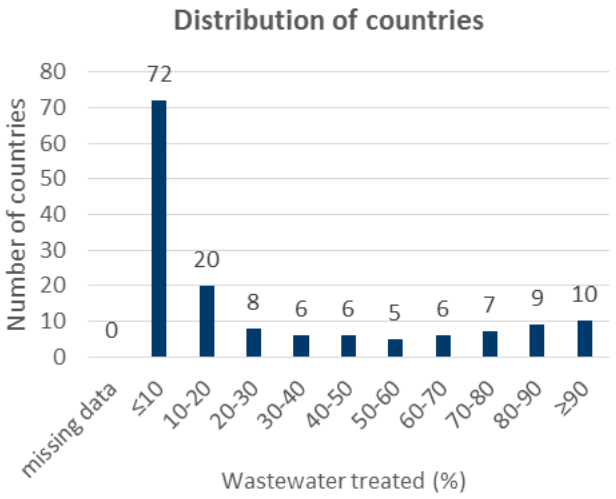
How well are countries performing against the indicators that sit behind the SDG goals and targets?

SDG 12 Indicator Profile: Wastewater treated
(NB. this table is from the SDG Index & Dashboards - Global Report)

Wastewater treated (%)

Country	Value/Rating
Singapore	99.7
Netherlands	98.8
UK	97.9
Switzerland	97
Germany	95.2
Luxemb.	95
Denmark	93.5
Spain	92.8
Australia	92.3
Italy	91.4
Israel	88.4
Sweden	87.9
Ireland	87.5
Greece	87.3
Belarus	86.4
Finland	84.3
France	83.8
Korea, Rep.	83.7
Canada	80.4
Austria	79.1
New Zealand	77.9
Norway	77.1
Czech Republic	75.7
Estonia	75.3
Japan	71.3
Portugal	70.3
Chile	68.8
Qatar	67.3
UAE	67.1
USA	63.7
Poland	60.7
Belgium	60
Hungary	58.6
Slovakia	57.6
Swaziland	55.5
Slovenia	54
Iceland	51.9
Latvia	49.6
Egypt	49.5
Turkey	48.9
Lithuania	45.8
Kuwait	43
Jordan	42.3
Morocco	39.4

Country	Value/Rating
Mexico	37.4
Malta	37
Algeria	34.6
Moldova	34.2
Kazakhstan	30.5
Bulgaria	28.9
Saudi Arabia	28.5
South Africa	27.9
Tunisia	27.8
Armenia	22.6
Russia	21.5
Peru	21
Panama	20.1
Mongolia	19.8
Cabo Verde	19.4
China	18.2
Thailand	16
Honduras	15.5
Lebanon	15.1
Venezuela	14.9
Ukraine	14.7
Zimbabwe	14
Oman	13.4
Croatia	13.2
Azerbaijan	13.1
Romania	13.1
Namibia	13
Argentina	11.7
Bolivia	11.3
Brazil	10.9
India	10.5
Ghana	10.2
Jamaica	10
Cyprus	9.4
Serbia	8.8
Malaysia	8.6
Nicaragua	8.4
Iraq	8.3
Uruguay	6.7
Ecuador	6.4
Dominican Republic	5.9
Guatemala	5.4
Mauritius	5.4
Trinidad and Tobago	5.3



Country	Value/Rating
Montenegro	5.1
Colombia	4.6
Kyrgyzstan	4.2
Zambia	4.2
Macedonia	3.7
Pakistan	3.5
Albania	3.4
Bosnia and Herzegovina	3.2
Iran	2.8
Mozamb.	2.5
Tajikistan	2.3
Senegal	2.1
Nigeria	1.1
Botswana	1
Costa Rica	0.9
Guinea	0.8
Cote d'Ivoire	0.6
El Salvador	0.6
Uganda	0.6
Kenya	0.5
Madagascar	0.5
Philippines	0.5
Yemen	0.5
Gambia	0.4
Tanzania	0.4
Lesotho	0.3
Congo, Rep.	0.2
Paraguay	0.2
Vietnam	0.1
Afghanistan	0
Angola	0
Bangladesh	0
Benin	0

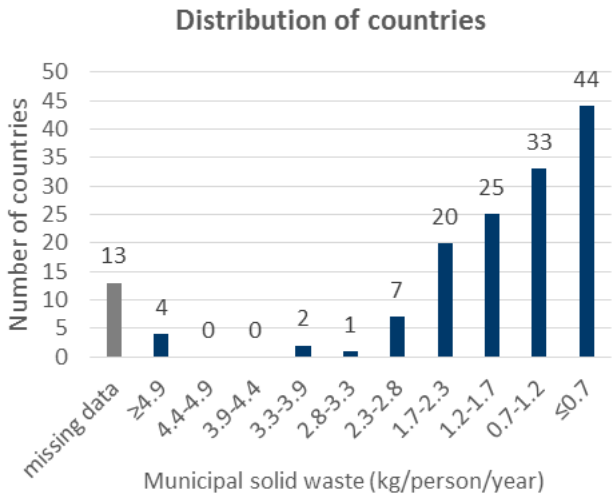
Country	Value/Rating
Bhutan	0
Burkina Faso	0
Burundi	0
Cambodia	0
Cameroon	0
CAR	0
Chad	0
Congo, Dem. Rep.	0
Ethiopia	0
Gabon	0
Georgia	0
Guyana	0
Haiti	0
Indonesia	0
Lao PDR	0
Liberia	0
Malawi	0
Mali	0
Mauritania	0
Myanmar	0
Nepal	0
Niger	0
Rwanda	0
Sierra Leone	0
Sri Lanka	0
Sudan	0
Suriname	0
Togo	0

Source : Malik (2013) & OECD (2015). Years : 2012. Detailed metadata and quantitative thresholds used for each indicator are available online at www.sdgindex.org. Data refer to the most recent year available during the period specified.

How well are countries performing against the indicators that sit behind the SDG goals and targets?

SDG 12 Indicator Profile: Municipal solid waste
(NB. this table is from the SDG Index & Dashboards - Global Report)

Municipal solid waste (kg/person/year)



Country	Value/Rating
Mozamb.	0.1
Ghana	0.1
Nepal	0.1
Jamaica	0.2
Paraguay	0.2
Iran	0.2
Tanzania	0.3
Bolivia	0.3
Kenya	0.3
Croatia	0.3
Ethiopia	0.3
India	0.3
Myanmar	0.4
Bangladesh	0.4
Namibia	0.5
Philippines	0.5
Malawi	0.5
Swaziland	0.5
Lesotho	0.5
Gabon	0.5
Congo, Rep.	0.5
Angola	0.5
Indonesia	0.5
Rwanda	0.5
Congo, Dem. Rep.	0.5
CAR	0.5
Cote d'Ivoire	0.5
Sierra Leone	0.5
Togo	0.5
Benin	0.5
Burkina Faso	0.5
Chad	0.5
Gambia	0.5
Niger	0.5
Senegal	0.5
Cabo Verde	0.5
Mauritania	0.5
Uruguay	0.6
Zambia	0.6
Burundi	0.6
Nigeria	0.6
Mongolia	0.7
Zimbabwe	0.7

Country	Value/Rating
Uganda	0.7
Armenia	0.7
Lao PDR	0.7
Oman	0.7
Mali	0.7
Madagascar	0.8
Belarus	0.8
Serbia	0.8
Albania	0.8
Tunisia	0.8
Cameroon	0.8
Sudan	0.8
Pakistan	0.8
Russia	0.9
Poland	0.9
Tajikistan	0.9
Colombia	1
Peru	1
Haiti	1
Botswana	1
Latvia	1
Brazil	1
Romania	1
Jordan	1
China	1
Nicaragua	1.1
El Salvador	1.1
Lithuania	1.1
Ecuador	1.1
Czech Republic	1.1
Macedonia	1.1
Chile	1.1
Panama	1.2
Argentina	1.2
Mexico	1.2
Dominican Republic	1.2
Slovenia	1.2
Algeria	1.2
Lebanon	1.2
Korea, Rep.	1.2
Bulgaria	1.3
Belgium	1.3
Qatar	1.3

Country	Value/Rating
Saudi Arabia	1.3
Costa Rica	1.4
Suriname	1.4
Slovakia	1.4
Egypt	1.4
Honduras	1.5
Estonia	1.5
Venezuela	1.5
Singapore	1.5
Morocco	1.5
Bhutan	1.5
Malaysia	1.5
Iceland	1.6
Sweden	1.6
Georgia	1.7
Japan	1.7
Malta	1.8
Turkey	1.8
Thailand	1.8
Vietnam	1.8
UK	1.9
France	1.9
Hungary	1.9
Guatemala	2
South Africa	2
Greece	2
UAE	2
Finland	2.1
Spain	2.1
Germany	2.1
Cyprus	2.1
Netherlands	2.1
Israel	2.1

Country	Value/Rating
Australia	2.2
Portugal	2.2
Italy	2.2
Mauritius	2.3
USA	2.3
Denmark	2.3
Canada	2.3
Luxemb.	2.3
Austria	2.4
Switzerland	2.6
Norway	2.8
Ireland	3.6
New Zealand	3.7
Sri Lanka	5.1
Guyana	5.3
Kuwait	5.7
Trinidad and Tobago	14.4
Afghanistan	n/a
Azerbaijan	n/a
Bosnia and Herzegovina	n/a
Cambodia	n/a
Guinea	n/a
Iraq	n/a
Kazakhstan	n/a
Kyrgyzstan	n/a
Liberia	n/a
Moldova	n/a
Montenegro	n/a
Ukraine	n/a
Yemen	n/a

Source : World Bank (2016). Years : 2012. Detailed metadata and quantitative thresholds used for each indicator are available online at www.sdgindex.org. Data refer to the most recent year available during the period specified.

Source: Sachs, J., Schmidt-Traub, G., Kroll, C., Durand-Delacre, D. and Teksoz, K. (2016): An SDG Index and Dashboards – Global Report. New York: Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN). All indicators are based on published data. Each data point is coloured as "green", "yellow" or "red", indicating whether the country is close or at SDG achievement (green), is in a "caution lane" (yellow), or is seriously far from achievement as of 2015 (red), on that indicator. Thresholds are based on the authors' analysis and expert assessments. For more detail, see www.sdgindex.org

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